Education and debate

Health inequalities and New Labour: how the promises compare with real progress

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Inequalities in health between rich and poor areas of Britain widened in the 1980s and 1990s, and the current government has repeatedly expressed its intention to reduce these inequalities. In this article, however, the authors report that inequalities in life expectancy have continued to widen, alongside widening inequalities in income and wealth, and argue that more potent and redistributive policies are needed

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This year marks the 20th anniversary of the World Health Organization's Global Strategy for Health for All by the Year 2000, which proposed 38 targets to reduce inequalities in health.[1] These targets were taken up by the governments of many countries, including Margaret Thatcher's Conservative government in the United Kingdom, which, just like Tony Blair's current administration, wished that inequalities in health would fall (see box).

In Britain the observation of and preoccupation with health inequalities has a much longer history than the last two administrations,[3] and many recent studies have documented a social and spatial polarisation of life chances continuing into the 1980s and late 1990s from a possible lull in the 1970s.[4–7] Clearly then, the Health for All aim of reducing inequalities between groups of the population had not been reached by the end of the 1990s—in fact, the opposite had occurred even though the fourth goal of increasing life expectancy has been attained.

Increasing health inequalities have been shown to reflect trends in income inequality, which also increased substantially over the last decades of the 20th century.[4 8] While in opposition, the Labour party had made political capital out of the non-implementation of the recommendations of Black report.[4 9 10] The New Labour government that came to power in 1997 did not initially shy away from acknowledging the wider (social and even structural) determinants of health (although the recent public health white paper

Despite government rhetoric to the contrary, inequalities in health and wealth have continued to increase in Britain

"Choosing Health" very much places the responsibility for health with the individual[11]). In 1997 Tessa Jowell, then minister for public health, criticised the previous administration for its "excessive emphasis on lifestyle issues" that "cast the responsibility back onto the individual."[4]

Labour has repeatedly expressed rhetoric directed at tackling health inequalities: "Tackling health inequalities is a top priority for this government" (Hazel Blears, parliamentary under secretary of state for public health[12]). Indeed, the government has launched repeated and unprecedented initiatives signalling its intent to tackle health inequalities through an independent inquiry,[5] a "cross-cutting review,"[12] and a "programme for action."[13] In February 2001 it announced two headline national targets for 2010—to reduce the gap in infant mortality across social groups and to raise life expectancy in the most disadvantaged areas faster than elsewhere.[14]

> **The four cornerstones of the Health for All policy[2]**
> • Ensuring equity in health by reducing gaps in health status between countries and between population groups within countries
> • Adding life to years by helping people achieve, and use, their full physical, mental, and social potential
> • Adding health to life by reducing disease and disability
> • Adding years to life by increasing life expectancy

P+ *Details of revisions to population census data and life expectancies in individual local authority districts appear on bmj.com*
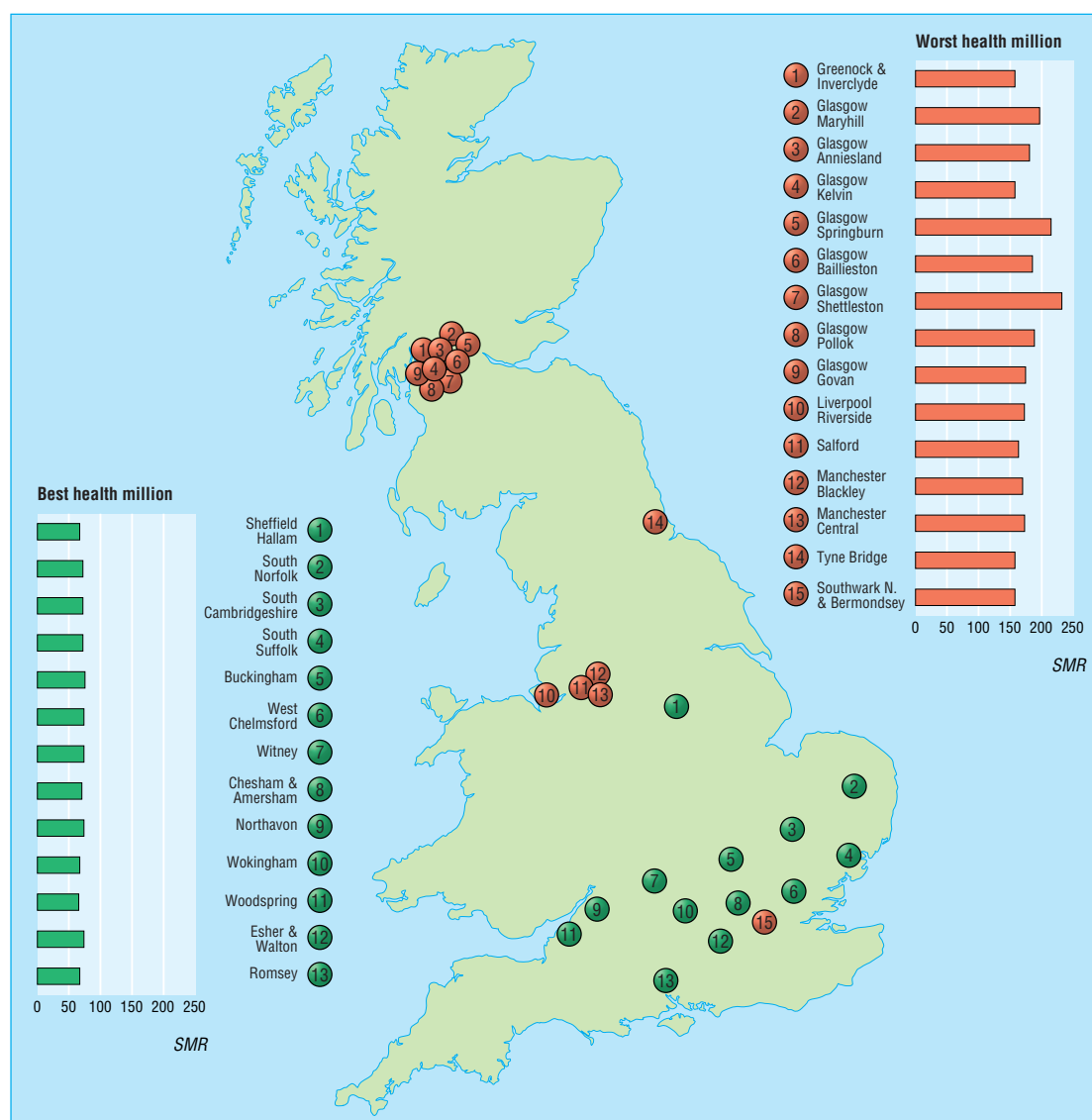
Fig 1 Mapping the best and the worst health in Britain.[3] The areas (parliamentary constituencies) containing the million people with the highest and lowest premature mortality (standardised mortality ratios (SMR) for deaths under 65 years of age) in Britain, 1991-5. (Average standardised mortality ratio for England and Wales=100)

The original wording of the latter target, as announced by the secretary of state in February 2001, was: "Starting with health authorities, by 2010 to reduce by at least 10 per cent the gap between the quintile of areas with the lowest life expectancy at birth and the population as a whole."[15] This is not simply a health target but, arguably (given that Frank Dobson, then secretary for health, stated in 1997: "Inequality in health is the worst inequality of all. There is no more serious inequality than knowing that you'll die sooner because you're badly off"), is the most basic of all government targets for "bringing Britain together."[16]

Technically, however, this is only a partial target for health inequalities because it concerns people with the worst life expectancy in comparison with the average rather than the worst compared with the best. Although comparing worst and best can be used to good effect to convey the extent of inequalities (fig 1),[4] better still is the slope index of inequality, which takes into account the position of all groups across the gradient simultaneously (see below).

The progress towards the life expectancy target can be monitored by means of the statistics that the government now makes available (www.statistics. gov.uk), but it should be noted that the target now states: "Starting with local authorities, by 2010 to reduce by at least 10 per cent the gap between the fifth of areas with the lowest life expectancy at birth and the population as a whole"[15] (because health authorities as defined at the time of the original target no longer exist). The baseline for the target has been set at 2001, and the most recent life expectancy data available are for 2001-3, so we cannot yet, even eight years after the election of New Labour, assess progress completely—but we can look at the trend up to the end of 2003.

Tracking progress towards (sensible) targets

In this article we check progress by using a modified version of the government's target that can be calculated for different times and which is less sensitive
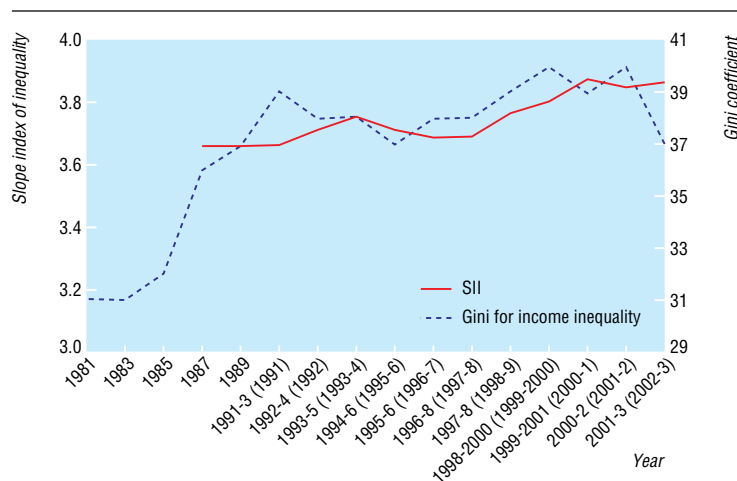
Fig 2 Slope index of inequality (SII) for life expectancy (by area level poverty) 1992-4 to 2001-3, and income inequalities (gini coefficient) 1981 to 2002-3. The first years shown relate to income inequality trend, the years in brackets relate to life expectancy data, which are three year aggregates. The gini coefficient (the ratio of the area under the Lorenz curve to the area under the diagonal on a graph of the Lorenz curve) is a measure of inequality where 0 represents complete equality (all people have the same income) and 100 represents the most extreme inequality (one person receives all the income). (Data sources: life expectancy data from analysis by authors, income inequality data from Lakin[6])

to changes in geographical boundaries and population deciles. We use the published life expectancy data for local authority districts that are aggregated to three year periods (revised figures published in October 2004)[17] and mid-year estimates of population for the same areas and times (revised figures published in September 2004).[18]

Note the importance of using the revised population data. Until late 2004, population figures (and thus life expectancy figures) from the early 1990s onwards were still being revised to account for the finding from the 2001 census that almost a million men thought to be living in the UK were not actually here (and that they tended not to be living in poorer areas, as was previously thought). Any study that does not use the final revised population estimates by area for the late 1990s will (erroneously) tend to produce results suggesting that health inequalities were declining in this period.[19] (See appendix on bmj.com for the rationale behind the revisions to the census data.)

The government target does not refer specifically to male or female life expectancies, but these can be combined as a weighted average, as well as analysed separately. Many of the health inequalities initiatives relate only to England, and it is not entirely clear whether the targets refer to England, England and Wales, or the UK. As some of the areas in the UK with the highest premature mortality and worst health are found outside England, we have here included the data for England, Wales, and Scotland. It is also possible to include Northern Ireland here, which previous analyses of inequalities had not been able to include[4 6] (though its relatively small population size means that it has only a small influence on the findings). Any investigators wishing to replicate this work will find that they have to exclude the City of London and the Isles of Scilly because the Office for National Statistics does not publish life expectancy data for these small areas.

Taking poverty into account

Having obtained life expectancy and population data by area over time, we then need to order areas in some way. The official method is to rank areas, at each time point, by life expectancy. An alternative, and arguably better practice,[20] is to rank the areas by a measure that reflects the residents' socioeconomic circumstances at the start of the period studied; we use a measure of poverty.

Poverty in 1991 can be best indexed by a modified version of the 1991 Breadline Britain index, based on lack of basic amenities and access to a car, unskilled and semiskilled manual occupations, unemployment, households that are not owner-occupiers, and lone parent households. This index has the advantage of being based on what a sample of the population consider to be the conditions and extent of poverty and is a validated indicator of poverty.[21]

We therefore ranked local authority districts according to this poverty measure and grouped them into 10ths of equal population size on the basis of this ranking. We used the same 10ths, based on the 1991 census data, for each of the time periods so that, all else being equal, inequalities should attenuate over time as the poverty rate is for areas ranked at the start of the study period. In practice the choice of census date is immaterial as the geography of poverty has changed little since 1991 (the correlation coefficient of the 1991 Breadline Britain index and a preliminary version of the 2001 index for local authorities in Britain being $r = 0.97$[22]); indeed there is some evidence that the broad geography of poverty in Britain has changed little over the past century.[23]

Note that a poverty ranking of areas tends to be robust—in contrast with the official measure of health inequalities, which sorts areas into 10ths on the basis of the contemporary life expectancies. The official measure is highly volatile because individual authorities can enter or leave the worst off fifth of areas as the result of a tiny number of events.[15]

The most inclusive measure of inequality in life expectancy is the slope index of inequality, which we calculated for each three year period from the slope of the regression line from the hypothetically poorest individual to the hypothetically richest individual derived from the relative poverty ranks of life expectancy for each local authority district, weighted for population size.[24] The slope index of inequality takes into account all measures for all areas and not, say, simply the worst-off and best-off 10th or fifth of areas. The index is most effective as a summary measure when the two measures are linearly related, as is the case with the data we analysed. The index has a further advantage that it is, by definition, unaffected by general increases or decreases in life expectancy over time (in this case the constant changes but not the slope).

The table shows the life expectancy for males, females, and both sexes combined by poverty. Over the 10 years studied life expectancy has risen for all poverty groups. However, the slope index of inequality for both sexes has also edged upwards, from 3.71 in 1992-4 to 3.87 in 2001-3. The absolute difference in life expectancy between the top and bottom poverty groups has increased to more than four years. Similarly the difference between the individual local authority

Life expectancy in Britain by poverty, slope index of inequality, and difference between poorest and richest areas, 1992-2003. (Values are life expectancy in years unless stated otherwise)

	Both sexes combined				Males				Females			
	1992-4	1995-7	1998-2000	2001-3	1992-4	1995-7	1998-2000	2001-3	1992-4	1995-7	1998-2000	2001-3
Poverty group*:												
1	74.4	74.8	75.5	76.2	71.2	71.7	72.5	73.3	77.4	77.8	78.3	79.0
2	75.4	75.9	76.4	77.1	72.3	73.0	73.6	74.5	78.2	78.6	79.0	79.5
3	75.7	76.1	76.7	77.4	72.8	73.4	74.0	74.8	78.4	78.7	79.3	79.8
4	75.7	76.1	76.6	77.3	72.8	73.3	74.0	74.9	78.4	78.7	79.2	79.7
5	76.2	76.6	77.2	77.7	73.4	73.9	74.5	75.3	78.9	79.2	79.6	80.0
6	76.9	77.3	77.8	78.4	74.1	74.6	75.4	76.1	79.5	79.8	80.2	80.6
7	77.2	77.6	78.3	79.0	74.6	75.2	75.9	76.8	79.7	79.9	80.6	81.1
8	77.5	78.0	78.6	79.3	74.9	75.6	76.3	77.1	80.0	80.4	80.8	81.4
9	78.0	78.4	79.0	79.7	75.4	76.0	76.8	77.7	80.3	80.6	81.1	81.7
10	78.3	78.8	79.5	80.3	75.9	76.5	77.3	78.3	80.6	81.0	81.5	82.2
Slope index of inequality	3.71	3.69	3.80	3.87	4.47	4.50	4.57	4.64	3.00	2.94	3.08	3.12
Difference between highest and lowest:												
Poverty group	3.91	3.95	4.02	4.06	4.73	4.84	4.89	4.97	3.16	3.15	3.20	3.17
Local authority†	8.9	8.6	8.7	9.4	9.8	10.0	10.7	11.0	8.1	7.8	7.5	8.4

*Groups formed by ranking local authority districts according to poverty and grouping them into 10ths of equal population size on the basis of this ranking.
†Individual local authority areas with the highest and lowest life expectancies.

areas with the highest and lowest life expectancies (Kensington and Chelsea and Glasgow City) has risen to 9.4 years by 2001-3 (see appendix on bmj.com for a list of the local authorities with the highest and lowest life expectancies).

For males the slope index of inequality increased from 4.47 to 4.64 over the period studied, and the difference in life expectancy between the top and bottom poverty groups rose from 4.73 to 4.97 years (table). When individual local authority districts are compared, the difference between the one with the lowest life expectancy (Glasgow City) and the one with the highest (East Dorset) has risen to 11 years. Since Victorian times, such inequalities have never been as high.[25][26]

For females the slope index of inequality increased from 3.00 to 3.12, but the difference in life expectancy between the top and bottom poverty groups remained stable (table). Comparison of individual local authorities, however, showed that the difference between the one with the lowest life expectancy (Glasgow City) and the one with the highest (Kensington and Chelsea) has risen to 8.4 years from 8.1 years in 1992-4.

Figure 2 shows the trend in slope index of inequality in life expectancy alongside trend data for income inequalities from the early 1980s to the early 2000s. We derived time series data on income inequality from work by Lakin.[8] Trends in both series of data fell slightly in the early 1990s—when John Major's Conservative government was in power. The current New Labour government thus inherited a slightly improving situation in terms of both mortality and income inequalities. Since the mid-1990s, however, and (as can be seen from these new results) continuing into the first years of the 21st century, both mortality inequality (by poverty by area) and income inequality increased. The notable exception to this is that in the most recent period for which data are available income inequalities decreased. Closer investigation of the factors contributing to this suggests that direct taxation may have become slightly more redistributive, alongside increases in benefits for those at the lower end of the income distribution, since the 2001 budget announcements were implemented in April 2002.

What does all this show?

The new data and the use of conventional measures such as slope index of inequality show increases in health inequalities in the early years of the 21st century in the UK: life expectancy continues to rise in the most advantaged areas of the country at a greater pace than in the poorest areas. This is despite much government rhetoric during the two terms of its administration proclaiming its intention to tackle health inequalities.

Moreover, for almost 20 years now, income inequality has remained at a historically high level. Income inequalities rose markedly in the 1980s and have been sustained throughout the 1990s and into the 2000s.[8] These inequalities are such that the poorest 10% in society now receive 3% of the nation's total income, whereas the richest 10% receive more than a quarter.[27] Income inequality is only part of the picture, however.

Wealth (which can be financial, such as savings, or in terms of other assets, such as house ownership) is more unequally distributed than is income. From a life course perspective wealth—which reflects lifelong circumstances—is a more salient measure than income. The distribution of wealth became more equal through much of the 20th century, but since the 1970s wealth inequality has increased, particularly so since 1995-6.[28] Between 1990 and 2000 the percentage of wealth held by the wealthiest 10% of the population increased from 47% to 54%, and the share of the top 1% rose from 18% in 1990 to 23% in 2000.[27] In Britain by area between 1993 and 2003, the housing wealth of the best off 10th of children increased by 20 times more than that of the worst off 10th of children.[29]

Clearly for some health outcomes there will be a delay in terms of the effect of material circumstances; the full impact of present income inequalities on population health may not be immediately apparent. Wealth inequalities, on the other hand, better reflect the accumulation of lifetime (dis)advantage, and the growing inequalities in wealth seen in recent years do not bode well for future trends in health inequalities.

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Summary points

Inequalities in health widened in the 1980s and 1990s, and the current government has repeatedly expressed its intention to reduce these inequalities

The health inequalities targets that have been set are symbolically important, but may be little more than that

New analysis shows that inequalities in life expectancy between rich and poor areas of the UK continued to widen in the first years of the 21st century, alongside widening inequalities in wealth, suggesting that more potent and redistributive policies are needed

It is not adequate simply to compare the worst off with the average, nor to pull some of the worst off out of poverty and assume inequalities in health will reduce

Raising the living standards of some of the poorest people in Britain has not reduced overall inequalities in health, while inequalities in wealth have continued to grow and are likely to be transmitted to the next generation

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Are these inequalities inevitable?

Inequalities vary between countries, and some have reduced their internal inequalities in recent years.[30] Inequalities in income and wealth are determined by policies on tax and benefits. Our levels of social security benefit for those out of work are relatively low compared with EU poverty standards[30] and too low to sustain good health.[31] [32]

Are these inequalities acceptable?

The British Social Attitudes Survey series has tracked the population's opinion on the key issue that underlies health inequality since 1983,[33] asking: "Thinking of income levels generally in Britain today, would you say that the gap between those with high incomes and those with low incomes is too large, about right or too small?"

In 1983, 72% of the population said that this gap was too large, and since 1989 this has been the view of 80% or more; in 2002, 82% of people thought this gap too large. Moreover, most people in each socioeconomic group, income group, and self rated hardship group thought that the gap between people on high and low salaries was too large (77% of those "living comfortably," 84% of those "coping," and 90% of those "having difficulty"). There is also consensus with this view across the broad political spectrum, by party identification (71% of Conservative voters, 88% of Labour voters, 84% of Liberal Democrats voters, and 81% of those with no affiliation).[33]

Yet "redistribution" is a dirty word in British politics, and we are a far cry from Denis Healey's threat to "tax the rich until the pips squeak." In the run up to the general election Labour and the Conservatives will not even hint at any tax rises; only the Liberal Democrats have a manifesto policy to increase the income tax of those earning more than £100 000 a year (1% of the total population). Despite their commitment to tackling health inequalities, when it comes to underlying income inequalities, New Labour have been prepared only to try lifting some sections of the population out of poverty; they have yet to effectively tackle the wider issue of inequality. The small changes towards redistribution of income that (may) have recently occurred need to be seen in the context of increasing inequalities in wealth (which may partly be a lag effect of increased income inequalities over the preceding decade[8]), although only large reductions in inequalities in income can lead to a long term reduction in inequalities in wealth.

Have policy changes been sufficient to redress these inequalities?

In the light of the evidence from 100 years of poverty research in Britain it was recently claimed of the government's strategy on poverty that: "Though the treatment is good and getting better, the dose needs strengthening.... If the government is going to be able to deliver on poverty it is going to need to raise more from our tax system and make it more redistributive." (Bradshaw J. "Understanding and overcoming poverty." Keynote address given at Joseph Rowntree Foundation Centenary Conference, University of York, 13 December 2004).

Despite favourable economic circumstances, and inroads made by initiatives such as the national minimum wage, new deal, and tax credits, more substantial redistributive policies are needed that address both poverty and income inequality.

What do recent changes suggest for inequalities in the future?

The current trend of growing inequalities in wealth suggests that we are likely to see growing inequalities, transmitted to and magnified among future generations. However, if there were the political will, the reduction in income inequalities seen for 2002-3 could signal a turning point in this vitally important trend.

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Readers guide to critical appraisal of cohort studies: 3. Analytical strategies to reduce confounding

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Analytical strategies can help deal with potential confounding but readers need to know which strategy is appropriate

The previous articles in this series[1][2] argued that cohort studies are exposed to selection bias and confounding, and that critical appraisal requires a careful assessment of the study design and the identification of potential confounders. This article describes two analytical strategies—regression and stratification—that can be used to assess and reduce confounding. Some cohort studies match individual participants in the intervention and comparison groups on the basis of confounders, but because matching may be viewed as a special case of stratification we have not discussed it specifically and details are available elsewhere.[3][4] Neither of these techniques can eliminate bias related to unmeasured or unknown confounders. Furthermore, both have their own assumptions, advantages, and limitations.

Regression

Regression uses the data to estimate how confounders are related to the outcome and produces an adjusted estimate of the intervention effect. It is the most commonly used method for reducing confounding in cohort studies. The outcome of interest is the dependent variable, and the measures of baseline characteristics (such as age and sex) and the intervention are independent variables. The choice of method of regression analysis (linear, logistic, proportional hazards, etc) is dictated by the type of dependent variable. For example, if the outcome is binary (such as occurrence of hip fracture), a logistic regression model would be appropriate; in contrast, if the outcome is

Stratification of the cohort helps minimise bias

time to an event (such as time to hip fracture) a proportional hazards model is appropriate.

Regression analyses estimate the association of each independent variable with the dependent variable after adjusting for the effects of all the other variables. Because the estimated association between the intervention and outcome variables adjusts for the effects of all the measured baseline characteristics, the resulting estimate is called the adjusted effect. For example, regression could be used to control for differences in age and sex between two groups and to estimate the intervention effect adjusted for age and sex differences.

P+ *Results of propensity score analysis are on bmj.com*

This is the last of three articles on appraising cohort studies

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